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LOUIS P. MERRILL REGIONAL CONSERVATOR

HUBAM CLOVER

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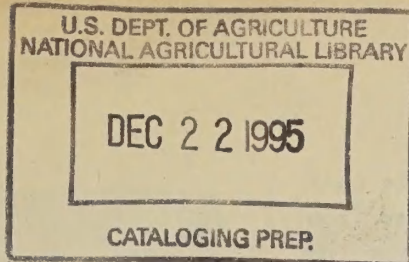
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HUBAM CLOVER

1. DECREASES SOIL LOSS AND RUNOFF.
2. IMPROVES TILTH OF SOIL.
(Makes land easier to plow and cultivate.)
3. INCREASES YIELDS OF CROPS BY IMPROVING SOIL.
4. REDUCES COTTON ROOT ROT DAMAGE.
5. PRODUCES GOOD QUALITY HIGH PROTEIN HAY.
6. PROVIDES EXCELLENT SUPPLEMENTAL GRAZING CROP.
(Fits in well on Johnsongrass.)
7. SUCCEEDS WELL AS DUAL CROP WITH SMALL GRAIN.
8. GROWS WELL -- EASY CROP TO PLANT AND GET A STAND.
9. MAKES LARGE AMOUNT OF SEED.
(Good possibility for cash crop.)
10. PRODUCES GOOD HONEY.

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Information in this booklet is based primarily upon experience with Hubam clover in the coordinated soil and moisture conservation programs being applied in soil conservation districts in the Blacklands of Texas. Considerable use and spread of this legume has been made in the Grand Prairie, Rolling Red Plains of Texas and Oklahoma and the Rio Grande Plain and Coastal Prairie of Texas.



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HUBAM CLOVER

CATALOGING PREP

Prepared by
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Hubam clover*, a versatile crop, has proved its value in conservation crop rotations in the Blacklands and Grand Prairie and is fast spreading to other sections of lime soils.

Fifteen years ago one of the greatest needs of Blackland agriculture was a satisfactory legume to be included in a crop rotation. A legume was wanted that would survive cotton root rot, that would make a vigorous growth for green manure, that could be used for hay and grazing, and that would produce an abundant seed crop. Hubam clover fills this major need. Its rise seems sudden but it came after a slow start.

As early as 1934, Soil Conservation Service technicians were advocating its use. A few acres here and there were planted; those formed the nucleus that furnished seed when the rush started.

From a mere few thousand pounds of seed available a few years ago, the crop has grown until in 1947 the seed harvest amounted to about 11,000,000 pounds in the Blackland area alone. In 1936, W. J. Hamm near Red Oak, Texas, in the present Ellis-Prairie Soil Conservation District on the urging of Soil Conservation Service technicians planted six acres of Hubam clover--the first in the area; by 1947 there were 25,000 acres planted in the one district. That is the way Hubam has progressed all over the Blackland.

In 1939 soil conservation districts in the Blackland, took the lead in promoting Hubam clover's use. The plant was needed to relieve the chronic ills of the tight soil and put new life in it. Its use in 1947 was limited only by the seed supply. This shortage should be alleviated if production and harvesting of seed continue in line with that produced in 1947.

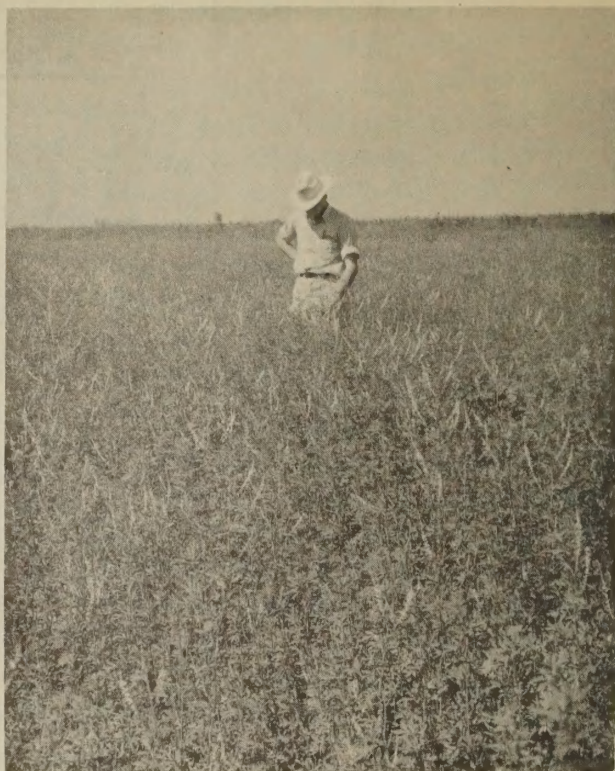
Both the growing Hubam clover and its residue are effective in reducing soil and water losses. It mellows the soil and lets it drink in more water. The Blackland Experiment Station at Temple, Texas, in reporting on a 5.7 inch rain in April 1945, states that the

*Hubam sweetclover is an annual white blooming sweetclover first found in Alabama about 1900. In 1914, Professor H. D. Hughes of Iowa State College discovered that certain sweetclover plants bloomed the first year. For a time great interest was manifested in the plant, which was named "Hubam" as a combination of the name of the discoverer and Alabama, the state from which it came. For a few years the demand for seed approached the proportions of a small boom but it soon subsided, presumably from lack of anyone to exploit its values.

runoff from Hubam was 12 per cent while oats had a 25 per cent runoff. The soil loss from the Hubam was .03 tons per acre and from the oats .12 tons per acre. In 1947 this station found that cotton after oats lost 16.2 tons per acre while cotton after Hubam lost 3.3 tons per acre.

Many farmers have commented on these abilities of Hubam. "Water in the terrace channel on the field where Hubam clover was grown was never as deep last year as in terrace channels on the other fields," is the evidence given by Rufe Henson on the Smyth ranch near Groesbeck, Texas, in the Limestone-Falls Soil Conservation District.

The way Hubam clover mellows and puts new life in tight, crusty soils is appreciated by farmers who have used this crop. Typical is the statement made by Otis Miles near Mosheim, Texas, in the Hamilton-Coryell Soil Conservation District, "Land will break well in August following Hubam clover, while land where clover was not grown usually is too dry and hard to plow." Several farmers' wives have stated that they know from the sound of the tractor just when their husbands enter and leave areas where Hubam had been grown.



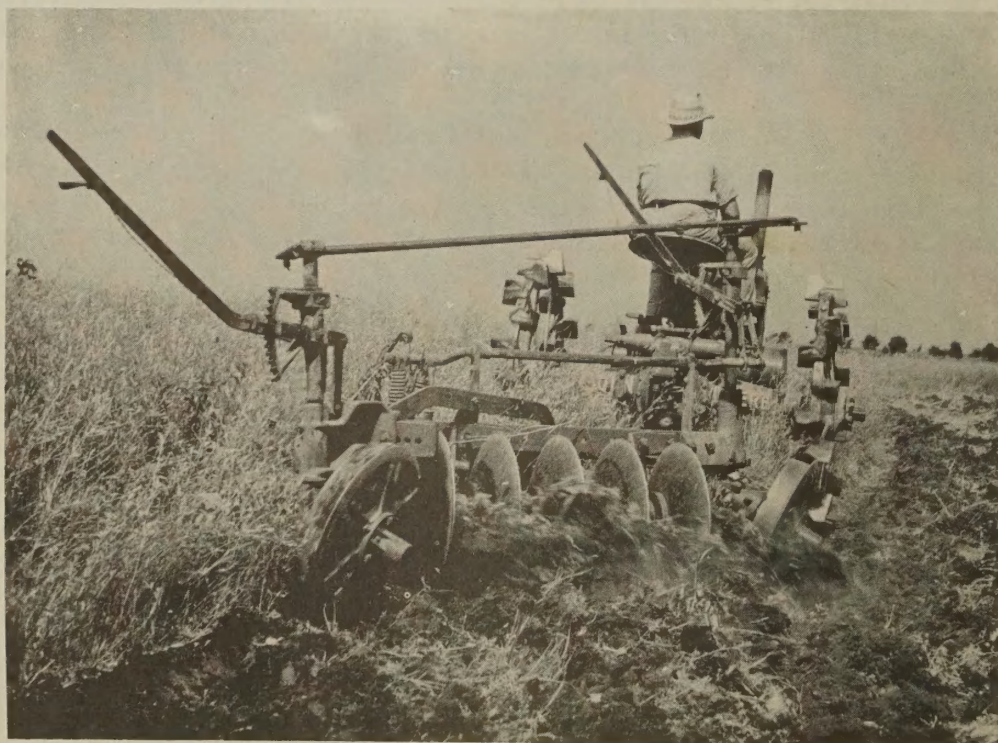
HUBAM DECREASES SOIL LOSS AND RUNOFF

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TURNING UNDER HUBAM
CLOVER TO ADD ORGANIC
MATTER AND FERTILITY

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HUBAM BOOSTS CROP YIELDS



Corn yields were increased by using Hubam clover on O. C. Wadley farm near Palmer, Texas.

* * * * *

Besides making the land more resistant to erosion, Hubam has brought marked increases in yields of crops following it. That it pays its own way is attested by many farmers. H. C. Westberry of the Files Valley Community, a cooperator with the Ellis-Prairie Soil Conservation District of Texas who has used Hubam for several years says, "Hubam clover has been my best cash crop for several years and my cotton yields have been increased 40 per cent, corn by 10 bushels an acre and oats production is up considerably. And I see very little dead cotton in my fields since I started planting clover."

A few of the other examples in this soil conservation district:

P. B. Berry near Red Oak - Barley following Hubam made 44 bushels per acre as compared to 33 bushels where the crop followed cotton.

H. D. Bunch at Sterrett - Made 42 bushels of oats following Hubam and only 19 bushels where oats followed cotton.

A field of wheat on the W. S. Brickell farm where he harvested 20 bushels of wheat after a Hubam crop, while 14-1/2 bushels was the yield where wheat followed cotton.

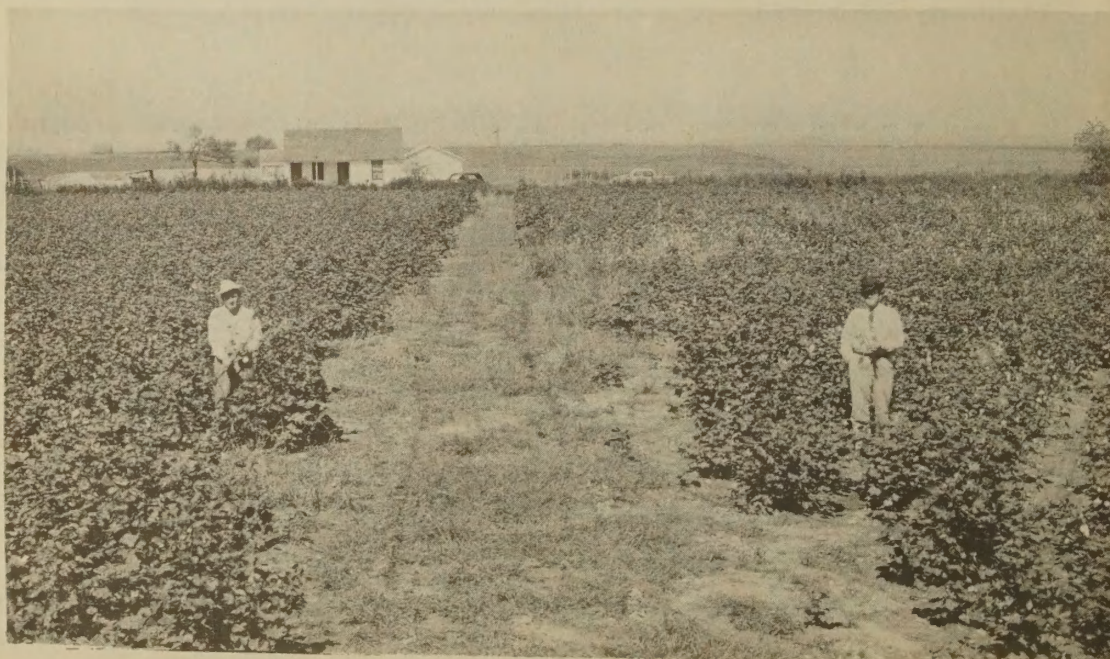
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Another distinctive trait of Hubam clover is that it side steps root rot by maturing early. The Texas Agricultural Experiment Station reports that at both the Temple and Denton substations crops which follow it are more able to resist root rot. For example, the Temple Station found in 1945 that the root rot damage where continuous cotton was grown was 20 per cent, but on lands where Hubam had been used in the rotation the damage was less than 7 per cent. The station also reports in 1947 that cotton yields have been doubled and corn yields have been increased one-third where those crops have been used in rotation with Hubam clover.

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Typical cotton field scene. Note better stand, healthier, larger plants on left area where cotton followed Hubam. Effects of root rot damage showing up on right area where no Hubam had been grown.



Folks on the John Scarborough farm near Paris in the North Texas Soil Conservation District, have discovered this too, as have many others. They report: "The 16 acres where we turned Hubam clover under as green manure produces like new land. No sign of root rot has shown since the clover was planted."

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One example of the effect of Hubam clover on crops on Texas Blacklands. The corn on the right-- fifth successive crop of corn on same land-- is but shoulder high on an average man. That on the left, grown in a two year rotation with Hubam, is a foot taller than an average man can reach.

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The nitrogen and organic matter added to the soil by Hubam clover produce dramatic results on succeeding crops. Alfred Ballman near Reisel, Texas, says his cotton yields have risen from 135 pounds to 240 pounds of lint per acre, with corn yields jumping to 34 bushels from the former yields of 22 bushels per acre. C. P. Stanford at Venus, Texas, in the Dalworth Soil Conservation District, picked 400 pounds more seed cotton per acre where cotton followed Hubam than he got where cotton followed cotton. Jones Wallin in the Taylor Soil Conservation District near Pflugerville, Texas, turns to his books to prove that he is getting 40 bushels of corn where 20 used to grow, 250 pounds of lint cotton instead of 167, 40 bushels of milo compared with 30 bushels, and 4 tons of non-legume hay where 3 formerly were harvested.

Good Hay and Supplemental Pasture From Hubam

Hubam's record as a stock feed is hard to beat. Henry J. Stermer, near Rosebud in the Central Texas Soil Conservation District, pastured six cows on five acres of mixed Hubam clover and oats from early December until the middle of March, 1946--better than 18 cow months of grazing--and the cattle kept in good condition. And then in the summer he cut nearly seven tons of fine hay from the field. The Warren Brothers near Hewitt, Texas, had a different angle. They didn't have to buy any protein feed for their dairy herd in 1945 as long as the Hubam clover hay lasted. That was an important saving.

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Hubam clover will produce grazing 75 to 90 days after planting in ordinary seasons. On good land one acre will furnish steady pasture for one cow during the growing season.

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The Blackland Experiment Station at Temple reported in 1945 that Hubam had produced 309 pounds of beef per acre from March 1 to June 20. On this station during 1946, 11.2 acres of badly eroded soil, infested with Johnsongrass and seeded with oats and Hubam clover, produced 173 pounds of beef per acre. Poor land responds to Hubam clover, but of course, good land yields better.

Many farmers report results similar to Wallin's at Pflugerville. He found that his five milk cows doubled their production while grazing Hubam. Farmers with Johnsongrass infested areas have found that Hubam clover grows well with the Johnsongrass and adds a high protein quality to their grazing or hay.



Deep in a supplemental pasture of Hubam and Johnsongrass.

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SMALL GRAIN-HUBAM COMBINATION--
Overseeding fall planted small
grain in early February and March
with Hubam clover ~~seems~~ to have
little effect on the grain yield.
However, the clover yields con-
siderably less than when planted
alone. But grain farmers are
saying that this crop combination
is the best thing they have found
to make them money and conserve
and improve land at the same time.

* * *

Hubam Is ■ Cash Crop Too

Hubam clover seed has been a friend-winning cash crop. The good seed yields are general. From 400 to 500 pounds per acre are common rather than exceptional. While prices went down in 1947, thinking farmers realize that there is more clear money left from ■ Hubam crop than from some cash crops. And that doesn't count the soil improving and erosion control value.

Even at 10 cents per pound, the return would run from \$30 to \$70 per acre. The cost of planting seed is small, inoculant cost is negligible. It is easy to plant Hubam and get ■ stand. It can be grown with ■ minimum of scarce, high priced labor, because it is planted early and harvested in the summer; with the work done mostly with machinery. A little figuring will show that while Hubam may be losing some of its monetary appeal, it is still a dependable cash crop. The additional money from the increased yields of crops following it is obtained without cost.

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A combine threshes Hubam seed out of the windrow.
The yield here was estimated at 550 pounds per acre.

Use of Superphosphate Pays Dividends

Phosphate fertilizer under Hubam clover pays when applied on eroded Blackland soil. The clover plants develop nodules or nitrogen-fixing bacteria earlier, have better root systems, grow off faster and produce more seed. Many farmers have stated about the same thing Wayne Williams of Blossom, Texas, says, "Hubam clover is three times as high where I applied superphosphate as it is where no phosphate was used." The Blackland Experiment Station reported that in 1946 the per acre yield of Hubam seed on badly eroded fine textured permeable soil (Austin clay) was 242 pounds where no phosphate was used, 355 pounds where 200 pounds of 20 per cent superphosphate was used, and 475 pounds of seed per acre where 400 pounds of 20 per cent superphosphate was used.

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Pictures above were taken on adjacent terrace intervals on the Allen C. Erskine farm near Seguin, Texas. The Hubam clover was all planted the same way on the same day except that 200 pounds of 20 per cent superphosphate was applied on the area in the picture to the right.

Bees Pay Both Ways With Hubam Clover

Farmers have found that where bees are thickest, seed yields are heaviest. W. S. Cunningham at Greenville, Texas, in the Upper Sabine Soil Conservation District found that his 20 acres of Hubam, which had averaged 350 pounds of seed per acre, yielded slightly more than 500 pounds of seed per acre when 20 hives of bees were placed in the field during blooming season.

Conversely, Hugh Shofner, Greenville beekeeper, stated that until the local soil conservation district went into the legume program, especially Hubam, there was no money to be made from bee keeping. Since then it is estimated that Hubam clover has increased honey yield locally from six to ten gallons per hive.

One hive of bees per acre is recommended for high seed yields. Planned pollination will increase the seed yield at least one-fourth.

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HUBAM CLOVER MAKES GOOD HONEY



Producing the Crop

Type of soil: Best adapted to heavier lime soils.

Inoculation: Be sure to inoculate seed with Group 1 inoculation. Follow carefully directions on can.

Planting time: February 15 to April 15 north of Temple, Texas; October 1 to November 15, south of Temple.

Planting rate: 10-15 pounds broadcast or with grain drill; 8-10 pounds drilled with small grain; 3-5 pounds in regular width rows; 15-20 pounds broadcast or drilled in Johnsongrass for hay or grazing. Best to use scarified seed -- otherwise takes more seed to get good even stand.

Seed bed: A smooth firm seed bed is necessary.

Planting depth: Plant one-half to one inch deep.

Fertilizer: 200 to 300 pounds 20 per cent superphosphate applied before or at time of seeding pays dividends particularly on eroded soils. Fertilizer attachments for grain drills lower costs of distribution and place material where it is more readily available.

Cutting for hay: Cut just before clover blooms or just as first blooms appear, usually in May or June. Bright well-cured Hubam clover hay is highly nutritious, palatable and non-toxic.

Harvesting the seed: Choice of three methods.

1. When about two-thirds of seed turn brown, usually in July or August, mow crop and windrow with a side-delivery rake in early morning when the crop is slightly damp and tough. After a few days of drying, thresh directly from the windrow by means of a rotary pick-up attachment on the combine.
2. At the same stage of maturity as in the first method, windrow with a grain binder by removing the knotting attachment and the bundle carrier. After drying, thresh directly from windrow with a combine.
3. Combine directly from the standing crop when practically all seed on the plants are dead ripe.

Method Number 2 has usually given the highest percentage of harvested seed, but good results have been obtained from the other methods.

Harvesting the grain crop in grain-Hubam combination: Two methods --

1. Cut the grain with a grain binder at the proper stage of maturity. Set the sickle fairly high so as to damage the clover the least possible. Haul the bundled and shocked grain from the fields and thresh it as soon as possible.
2. Windrow the grain with a grain binder by removing the knotting attachment and the bundle carrier. Use a combine with pick-up attachment and thresh directly from the windrow as soon as conditions will permit. A straw spreading attachment on the combine is essential.

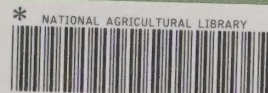
Windrowing is gaining in popularity. Trouble develops often when the grain is left for direct combining.

After the grain harvest, the Hubam clover grows up and matures and then may be handled as usual for hay, grazing, seed or green manure for soil improvement.

Handling for soil improvement: When used as a green manure crop, the more Hubam is allowed to grow the more fertility is added to the soil. The maximum results are obtained if the Hubam is turned under when the first blooms appear. It is best to follow with a summer crop when this method is used, otherwise some of the nitrogen will be lost by summer fallowing.

After seed harvest, the Hubam straw is valuable soil improvement material. It should be plowed into the soil, not burned. The disk breaking plow is much preferred to the one-way for breaking clover stubble.

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SOME DO'S AND DON'TS WITH HUBAM CLOVER

DO

CHECK SOIL IF THERE'S DOUBT HUBAM WILL GROW. (Soil Conservation Service technicians know or they can get soil tested in laboratory for sure check.)

GET PLANTING SEED EARLY. (Usually it's cheaper and better at harvest time.)

INOCULATE SEED. (Inoculation is cheap and is excellent insurance against failure.)

CALIBRATE DRILL OR PLANTER FOR PROPER SEEDING RATE. (Saves disappointments on thin stand or running out of seed before area wanted is seeded.)

PLANT HUBAM ON ALL IDLE JOHNSONGRASS AREAS. (Increases hay or grazing and helps to get soil ready for permanent grass.)


DON'T

EXPECT AS HIGH HUBAM YIELDS ON POOR LAND AS ON GOOD LAND. (Use of superphosphate will help get good overall production.)

OVERGRAZE GROWING HUBAM. (Plants must have some leaf surface to make food to make more root system and leaf growth for maximum grazing production for livestock.)

MISS THE CURRENT GOLDEN OPPORTUNITY OF A GOOD SEED SUPPLY AT A REASONABLE PRICE TO START A REAL SOIL IMPROVEMENT PROGRAM.

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